



Armed Forces College of Medicine AFCM



Anterior Abdominal Wall II

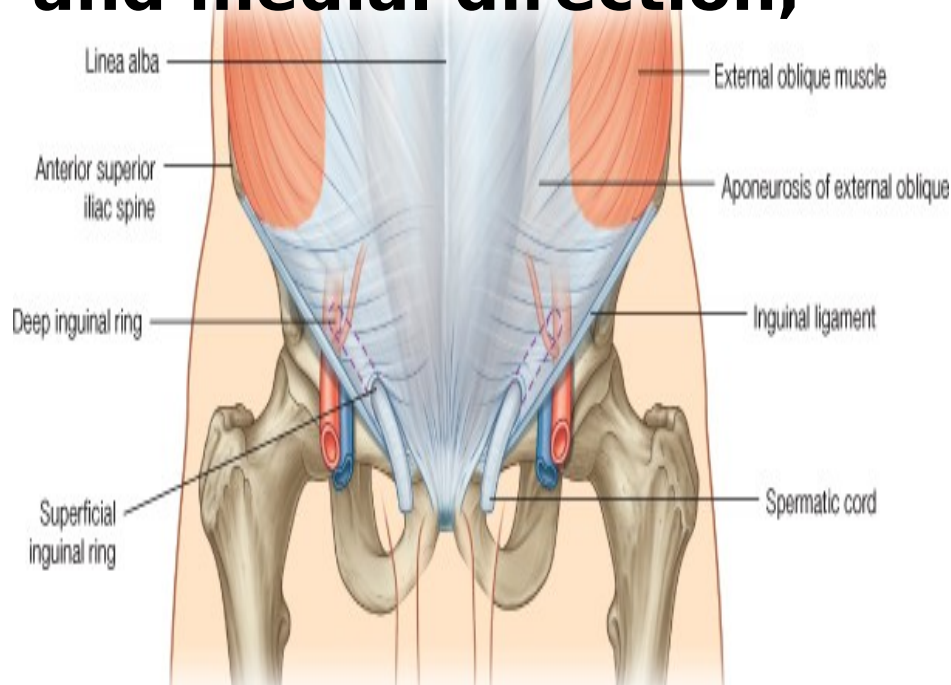
Inguinal Canal

ILLOS

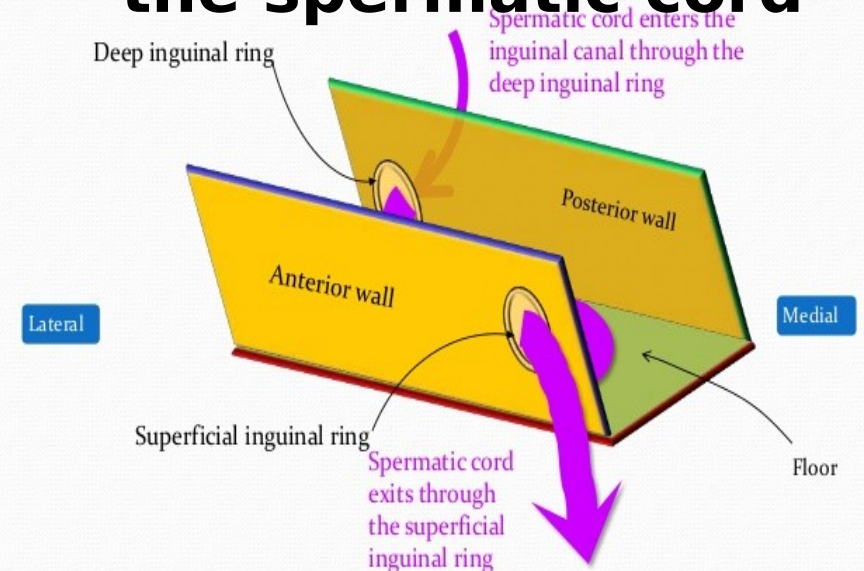
- By the end of this lecture, each student should be able to:
- **Describe** the inguinal canal, its length, walls & contents.
- **Describe** the superficial & deep inguinal rings.
- **Differentiate** between direct & indirect inguinal hernias.

INGUINAL CANAL

It is an oblique intermuscular passage extending in a downward and medial direction,

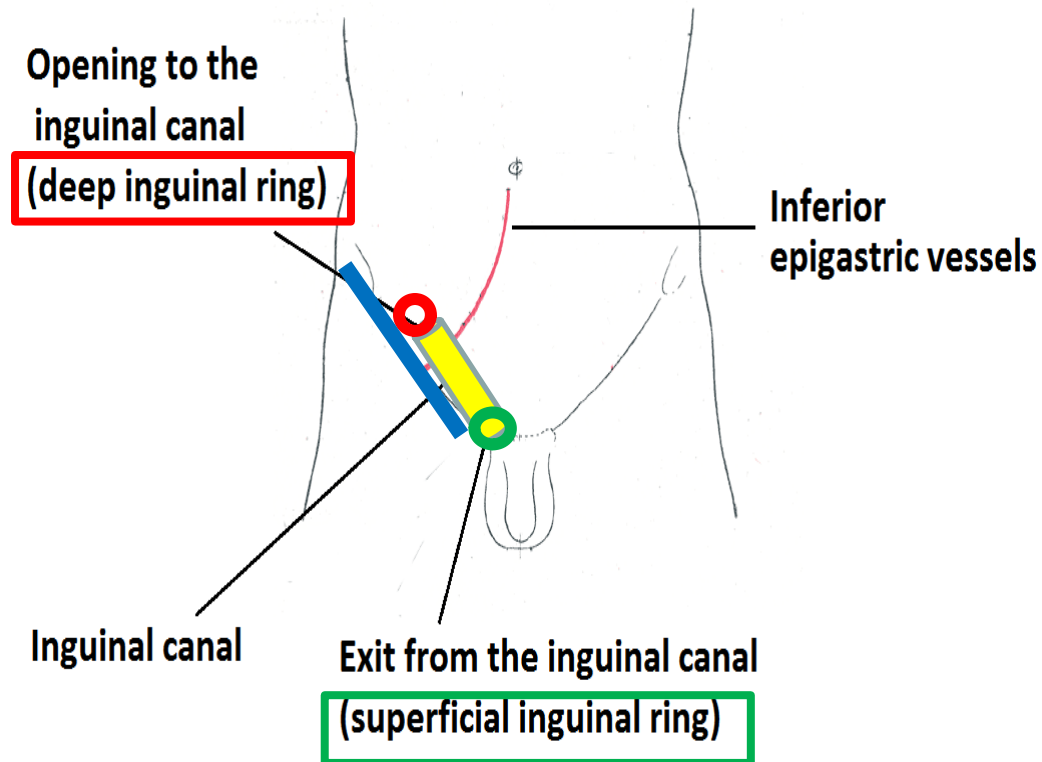


Begins at the deep inguinal ring & ends at the superficial inguinal ring.
Sex dif.: Larger in males & contains the spermatic cord



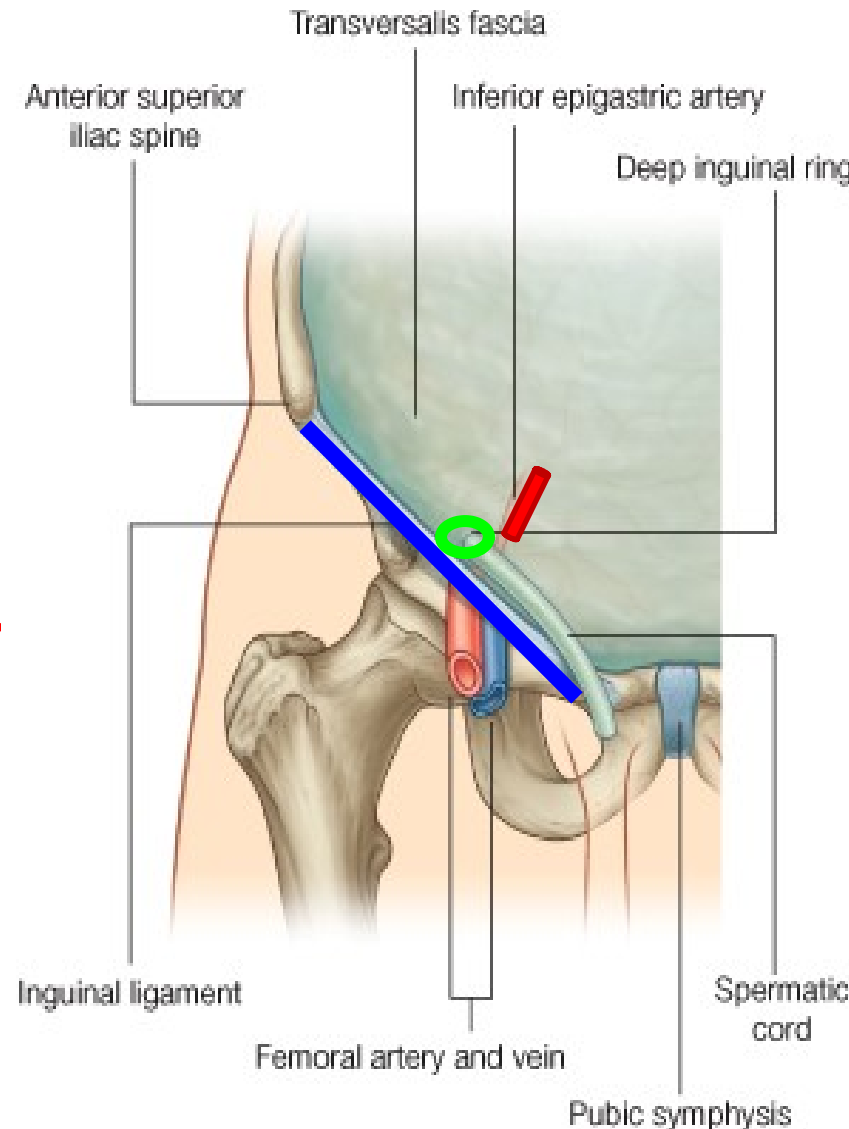
INGUINAL CANAL

- ❑ Site : above and parallel to the medial half of the inguinal ligament.
- ❑ Length: 4cm.
- ❑ , while smaller in females & contains the round ligament of uterus



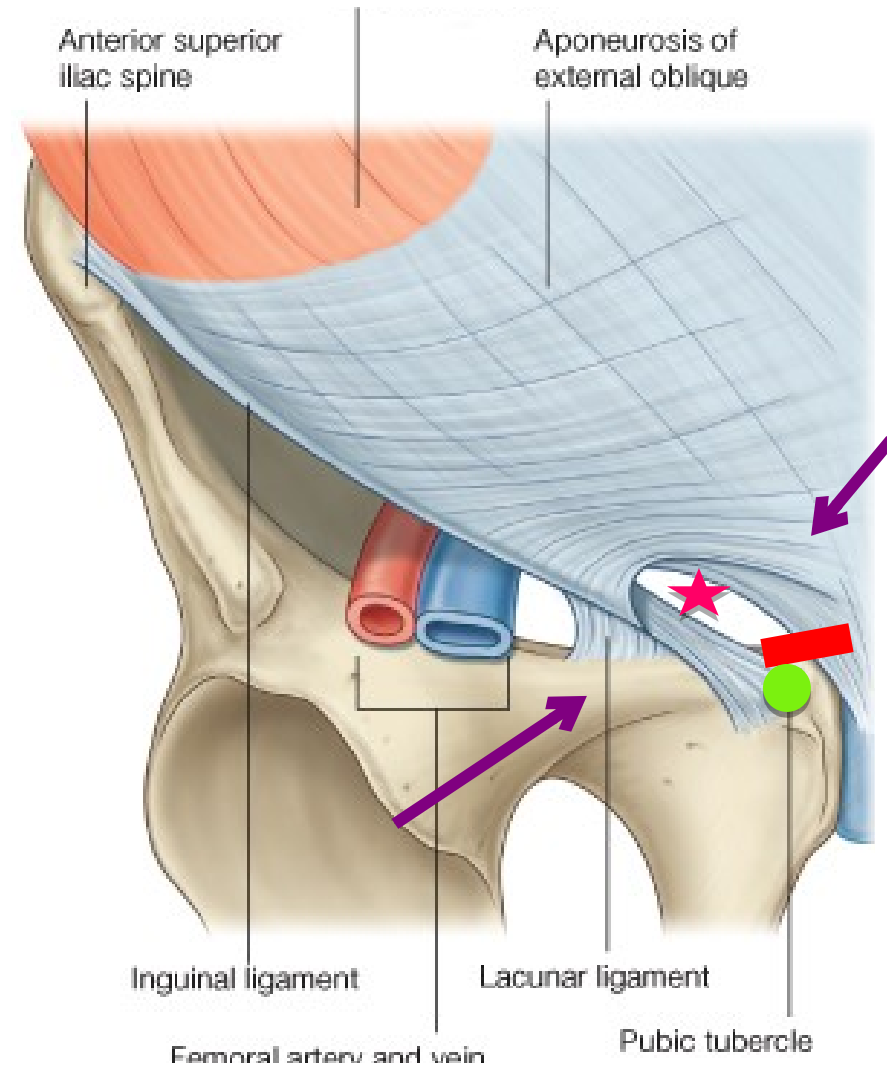
Deep inguinal ring:

- **Def.:** Oval opening in fascia transversalis
- **Site:** $\frac{1}{2}$ inch above midpoint of inguinal ligament
- **Relations:**
 - It lies **lateral to the inferior epigastric vessels.**
 - Its margins from fascia transversalis are prolonged around the spermatic cord & testis to form **the internal spermatic fascia.**



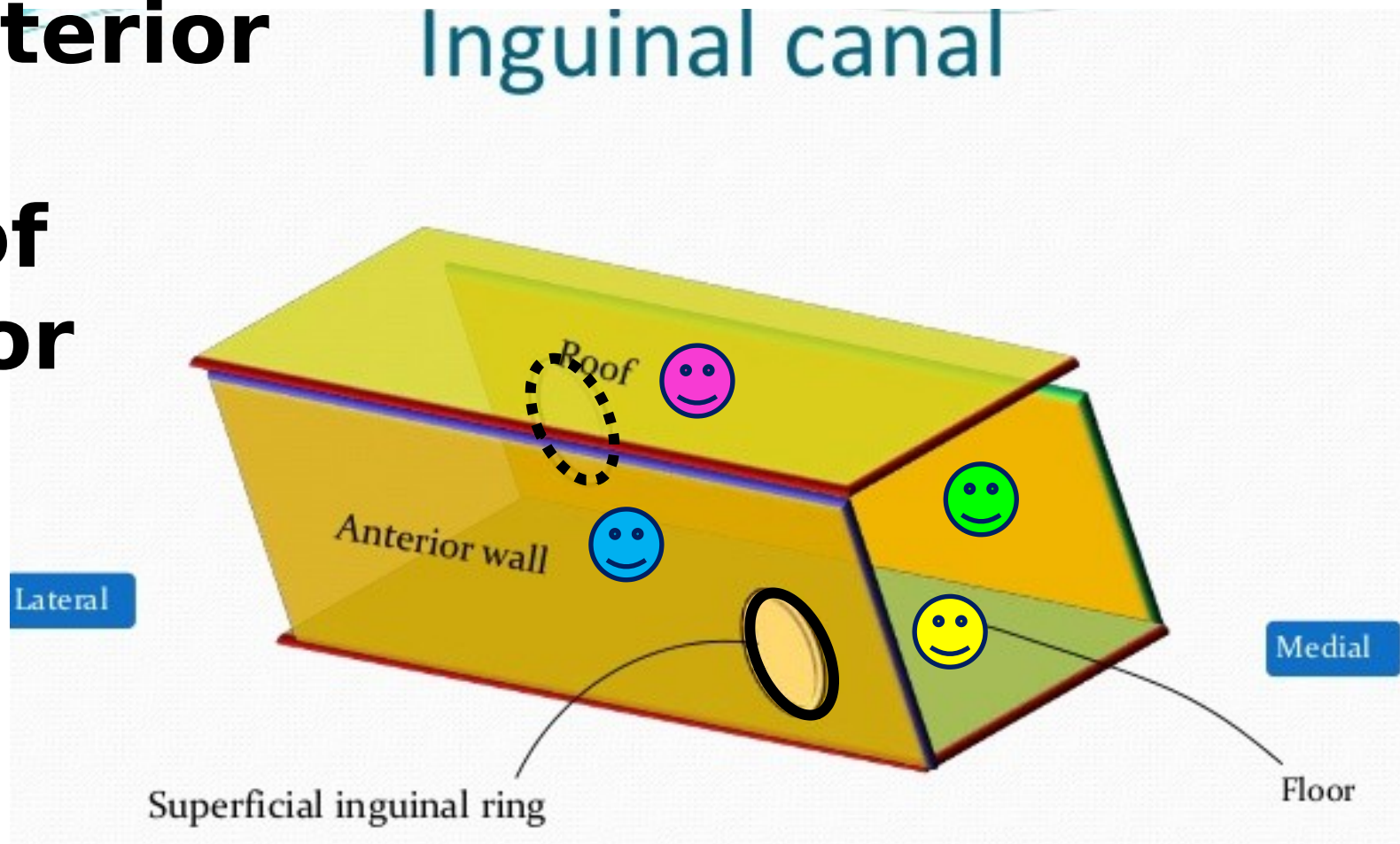
Superficial inguinal ring:

- **Def:** Triangular opening in external oblique aponeurosis.
- **Site:** above pubic tubercle
- **Relations:**
 - Base:** pubic crest.
 - Sides:** Crura (medial & lateral).
- Margins are prolonged around testis & spermatic cord forming **external spermatic**



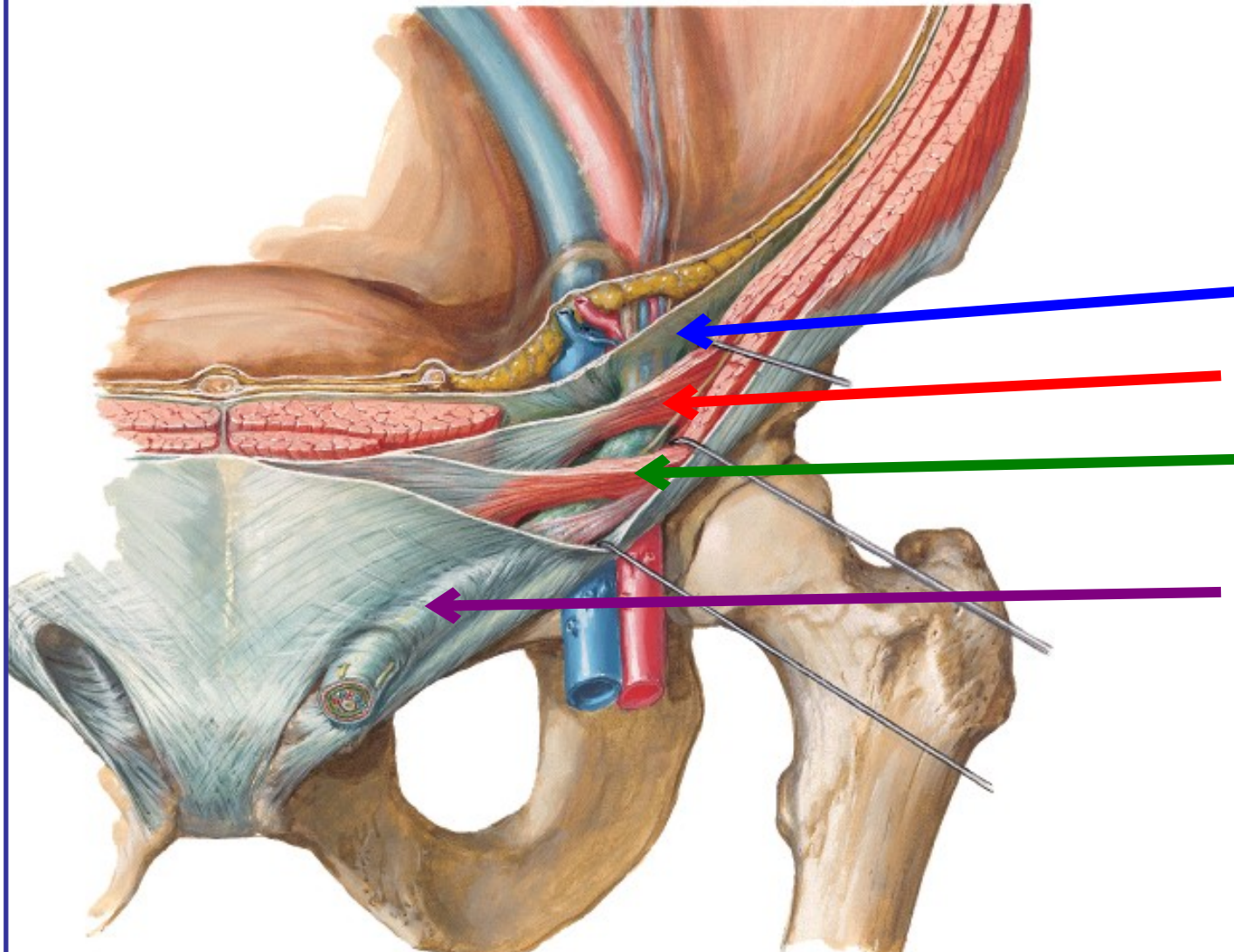
The inguinal canal has :

- 1)Anterior wall
- 2)Posterior wall
- 3)Roof
- 4)Floor



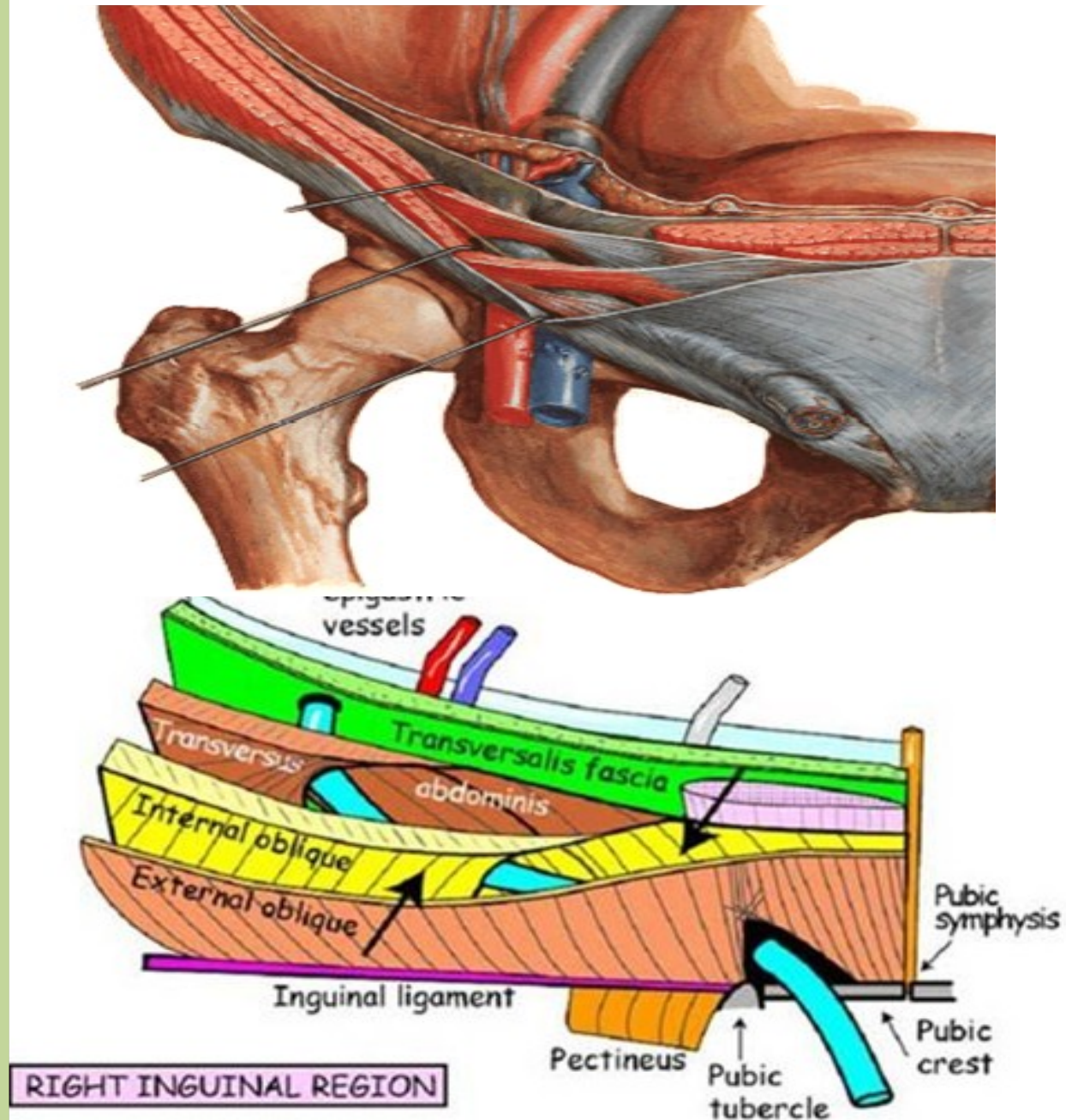
INGUINAL CANAL

- ☐ Fascia transversalis
- ☐ Transversus abdominis
- ☐ Internal oblique
- ☐ Aponeurosis of external oblique

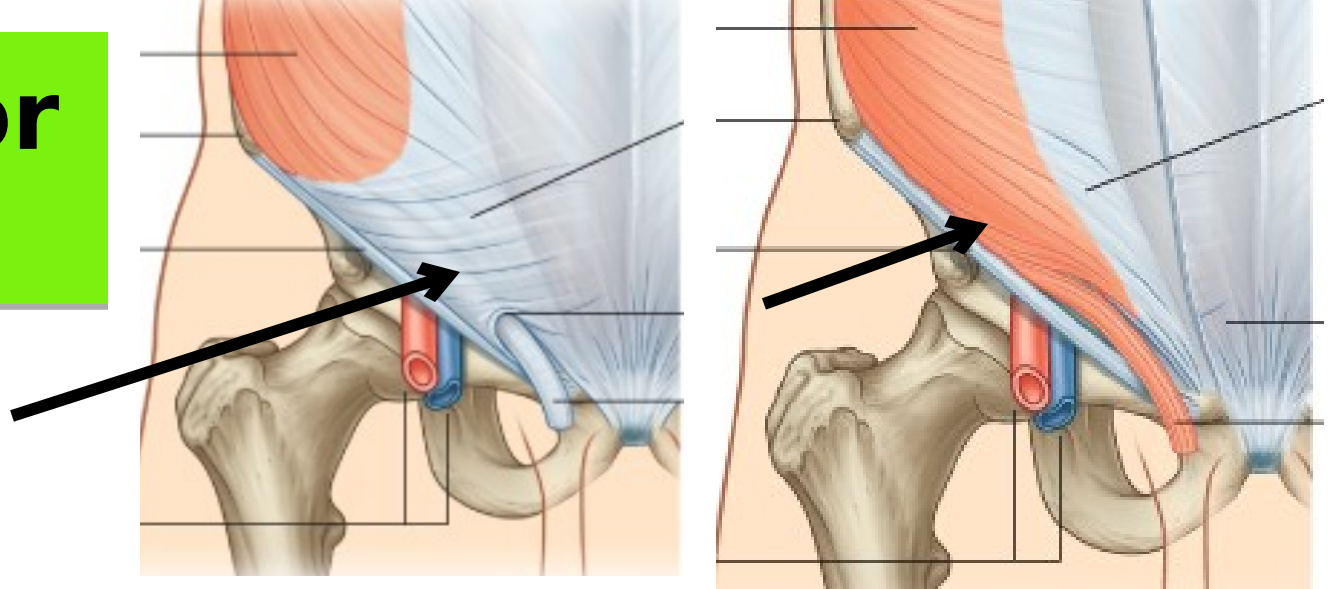


Boundaries of inguinal canal: 2 structures in each wall

- 1) **Anterior wall:**
external oblique along its whole length + internal oblique on lateral $\frac{1}{3}$
- 2) **Roof:** Lower arching fibers of internal oblique & transversus abdominis (conjoint tendon)
- 3) **Posterior wall:**
Fascia transversalis along its whole length + conjoint



Anterior wall



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- Along the entire length of the canal by the aponeurosis of the external oblique muscle.
- It is reinforced laterally by the fleshy fibers of internal oblique muscle

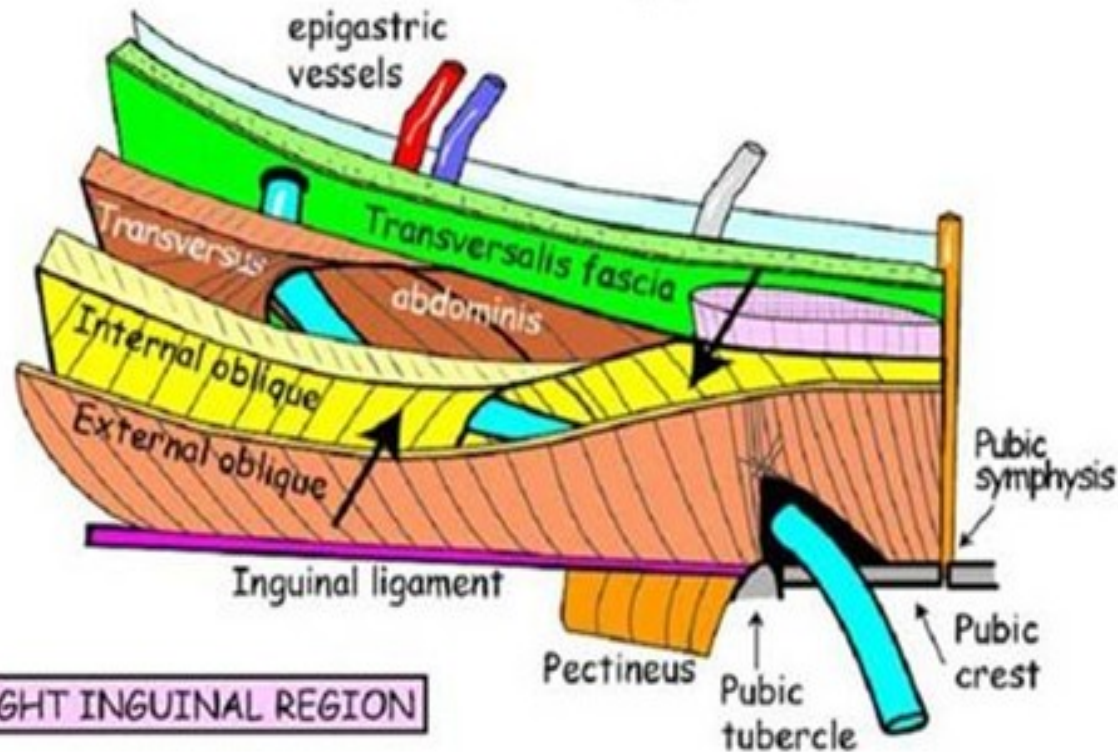
The anterior wall is weakened medially by the presence of the superficial inguinal ring.

Posterior wall

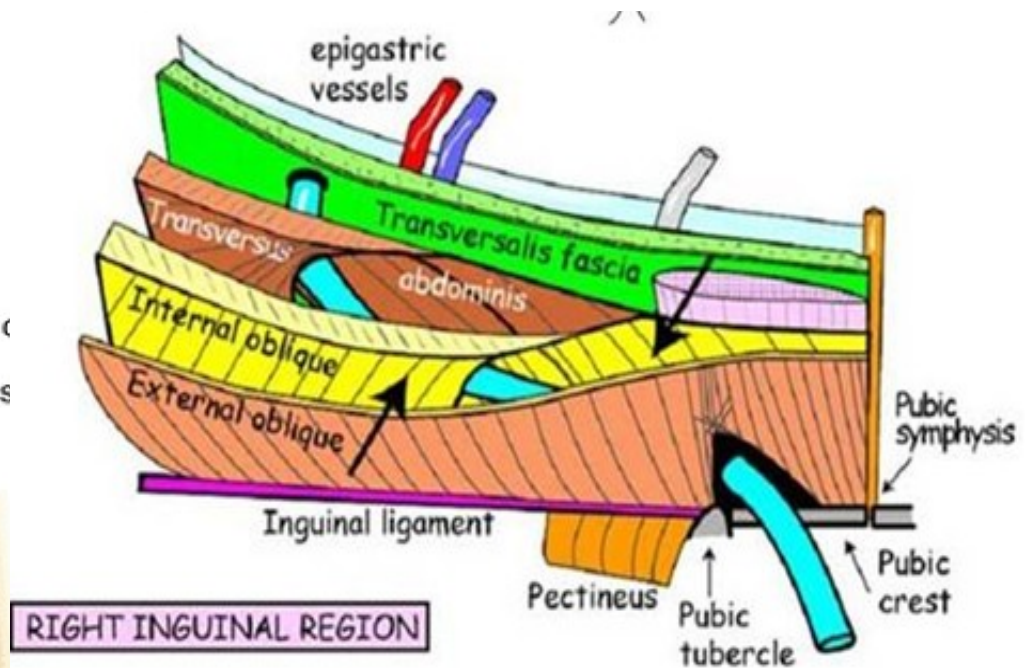
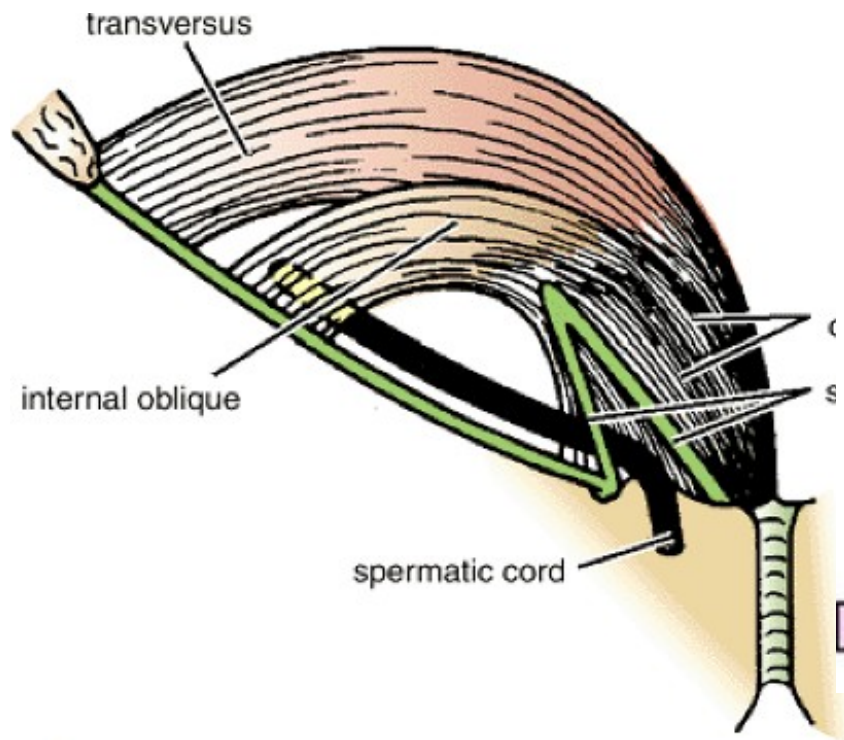
- The entire length of the canal by **the fascia transversalis.**

- It is reinforced along its medial one-third by **the conjoint tendon**

The position of the conjoint tendon posterior to the superficial inguinal ring provides support to a potential point of weakness in the anterior abdominal wall.

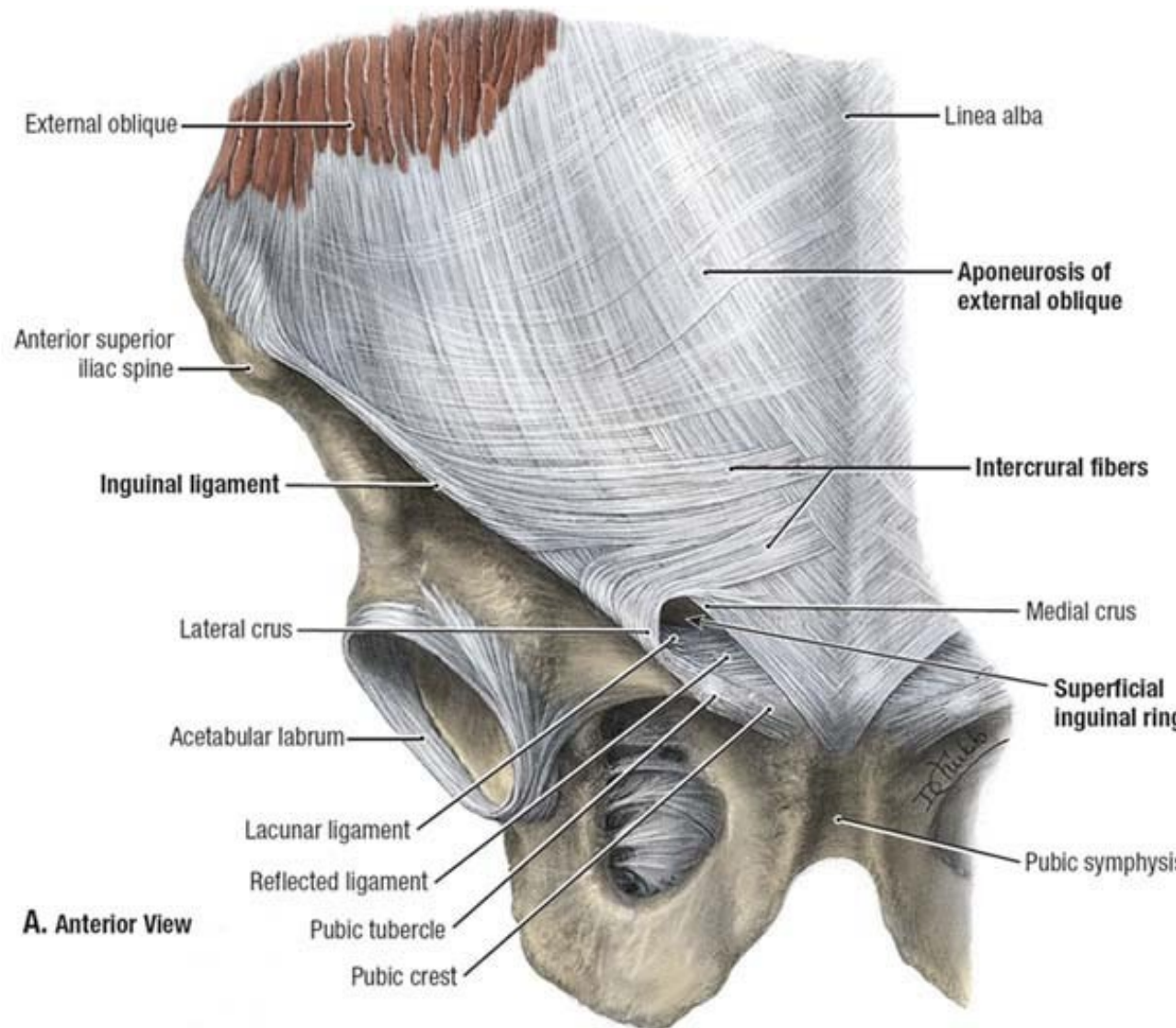


Roof is formed by arching fibers of internal oblique and transversus abdominis



Floor

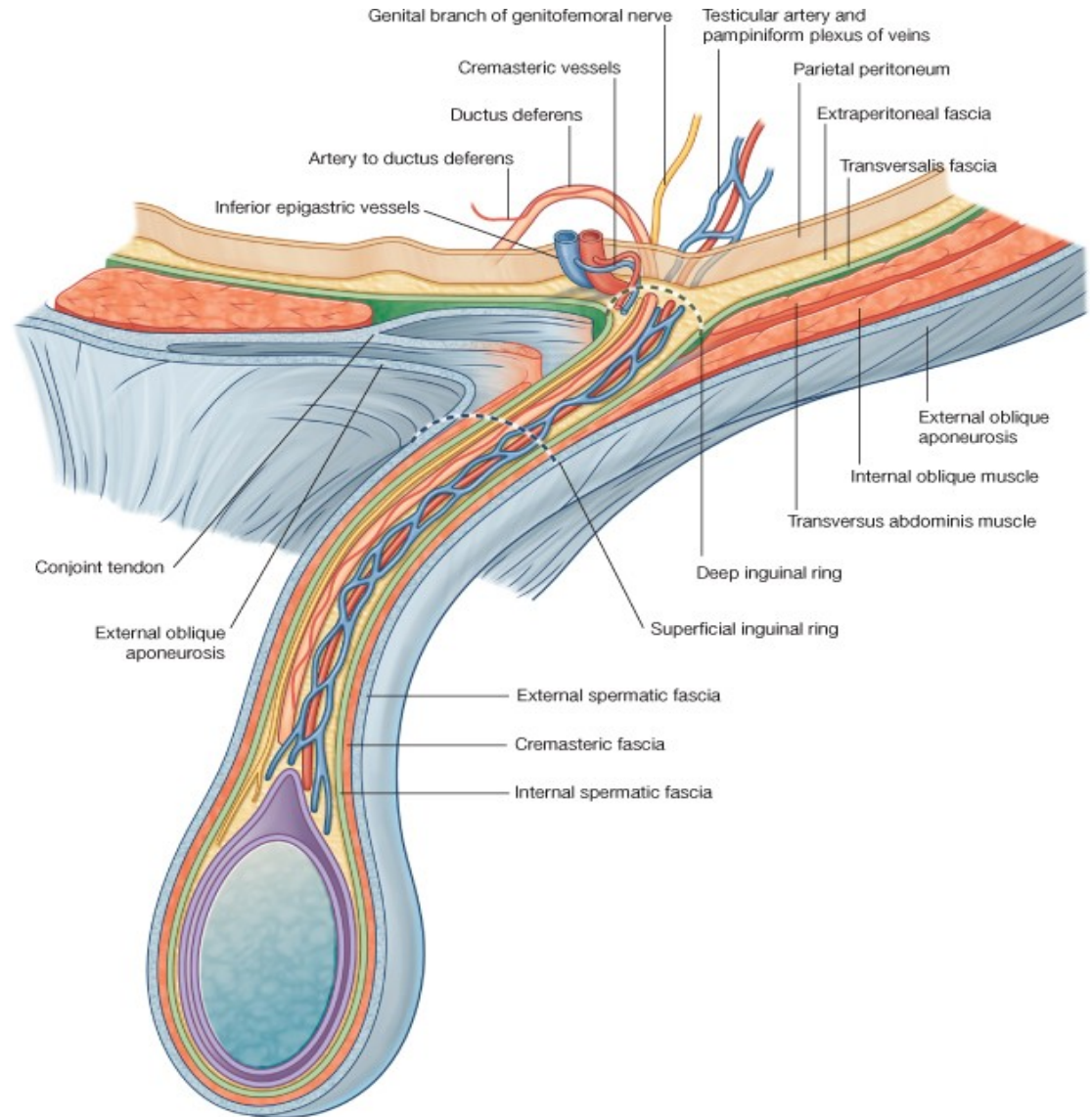
- The floor is formed by concave upper surface of **the inguinal ligament & by the lacunar ligament at its**



Contents

**1) The
spermatic
cord in
males, the
round
ligament of
the uterus
in females**

**2) The
ilioinguinal
nerve (L1) in
both males**



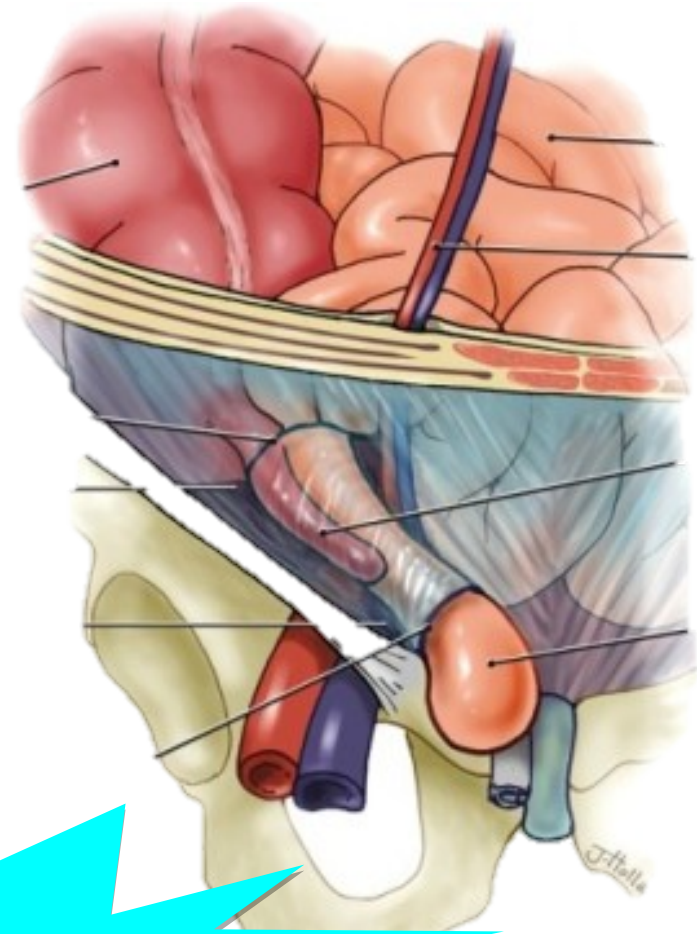
Inguinal hernia

- Hernia is the protrusion of abdominal contents (usually intestine) within a sac of peritoneum through a weak point in the abdominal wall

- **2 types:**

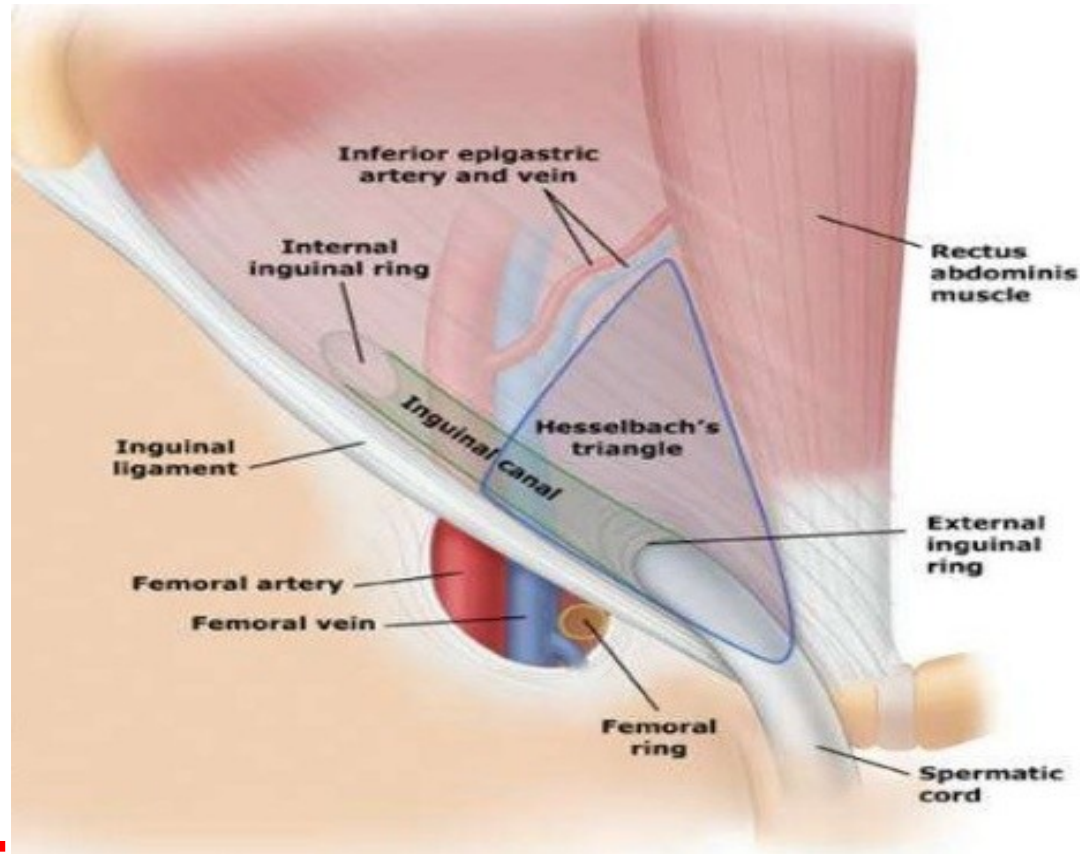
1. **Indirect (oblique) inguinal hernia.**

2. **Direct hernia.**



Inguinal hernias are more common in males due to the wider & well developed Inguinal canals

Inguinal hernia



**Indirect
(oblique)
inguinal
hernia**



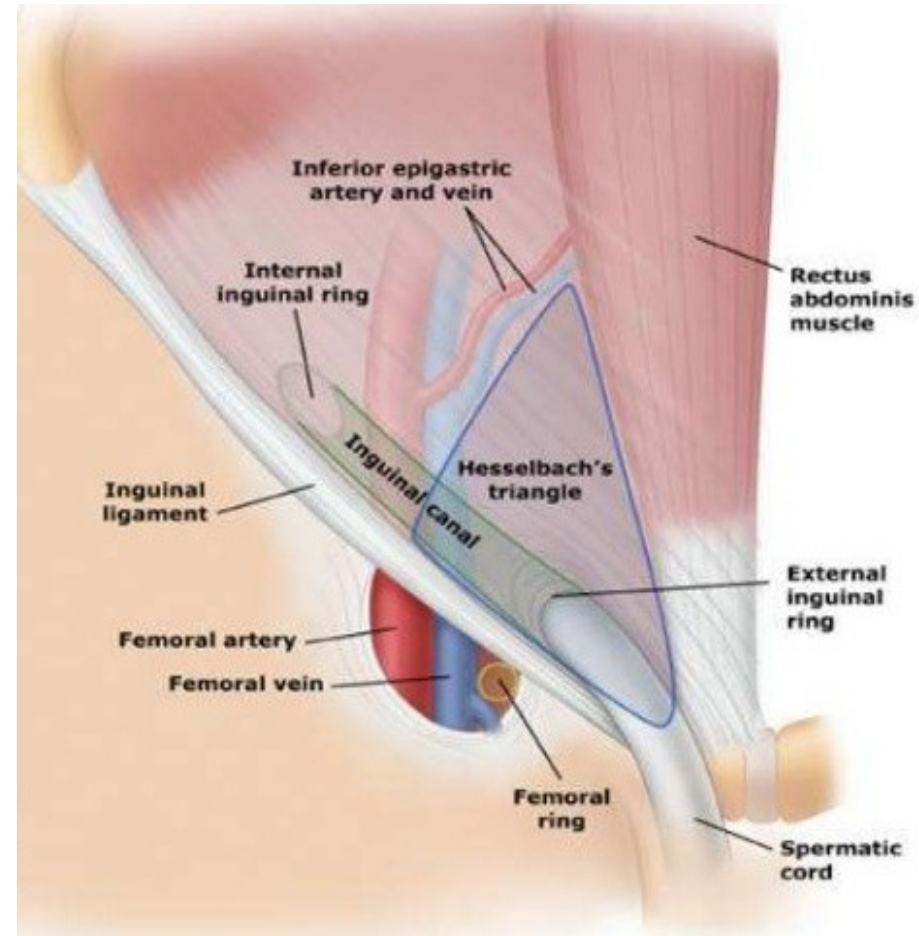
HERNIATION TYPES



**Direct
inguinal
|
hernia**

Inguinal Triangle (Hesselbach's triangle)

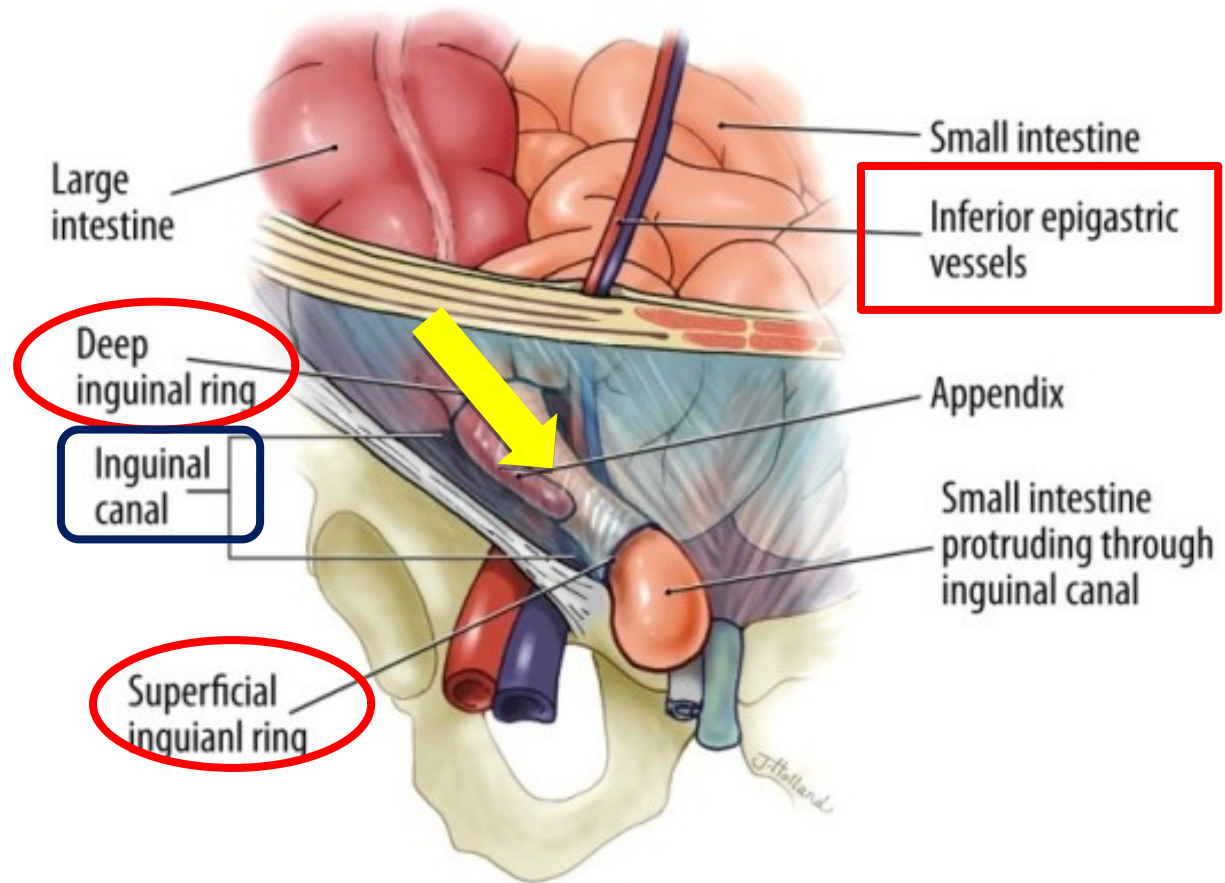
- **Laterally:** Inferior epigastric artery
- **Medially:** Lateral border of rectus abdominis
- **Inferiorly:** Inguinal ligament
- ***This triangle is the site of direct inguinal hernia.***



Oblique inguinal Hernia	Direct inguinal Hernia
More frequent 80-90%	Less frequent 10-20%
Usually congenital (infants & young adults)	In old age (over 50yrs)
Usually unilateral	Usually bilateral
Bulges through deep inguinal ring → scrotum	Bulges through inguinal triangle → doesn't reach scrotum
Neck of hernia sac is lateral to inf. epigastric vessels	Neck of hernia sac is medial to inf. epigastric vessels
Line of descent is downwards & medially	Line of descent is directly forward through posterior wall of inguinal triangle
Commonly obstructed (strangulated) at deep inguinal ring	Rarely obstructed as it has a wider neck

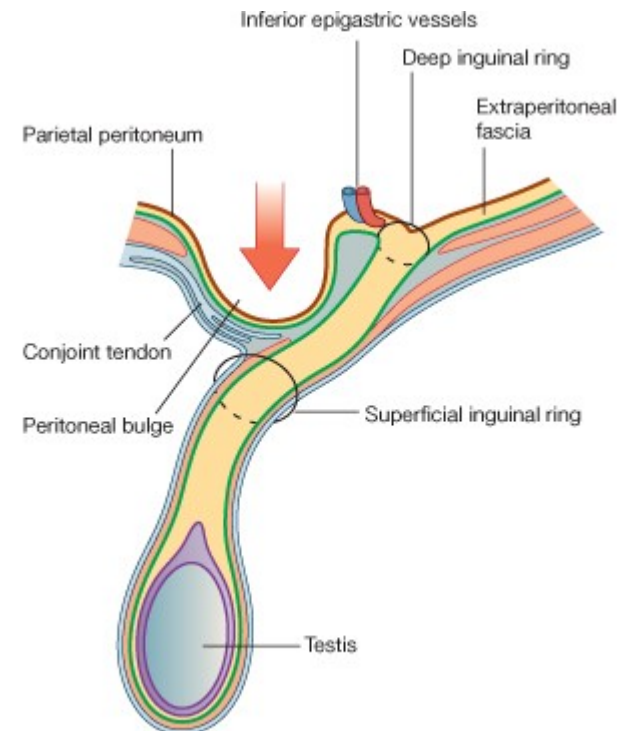
Indirect (oblique) inguinal hernia

- Herniation starts at deep inguinal ring, along the canal to the superficial inguinal ring.
- Arises lateral to the inferior

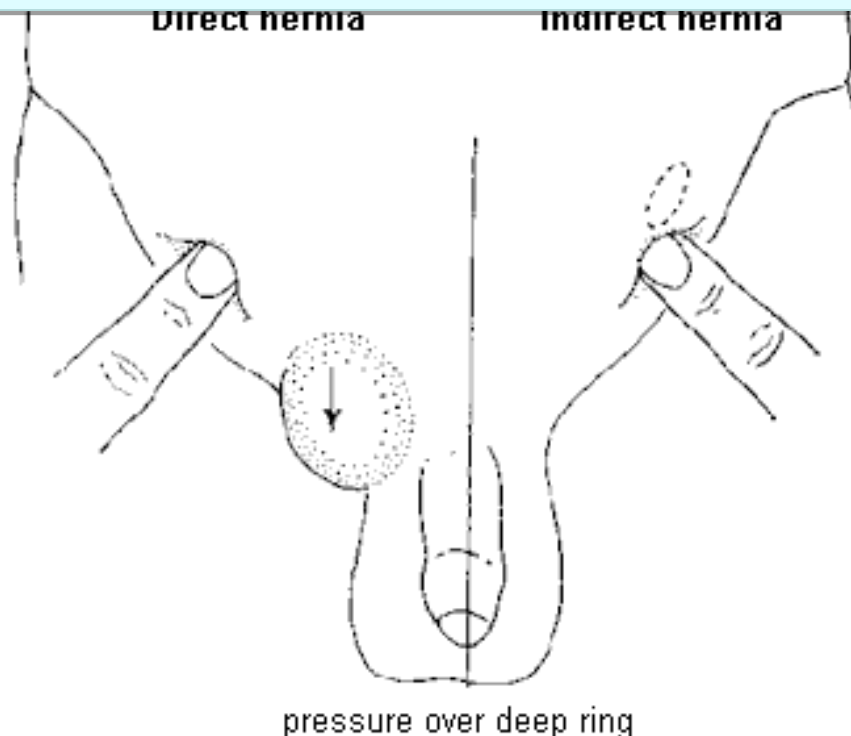


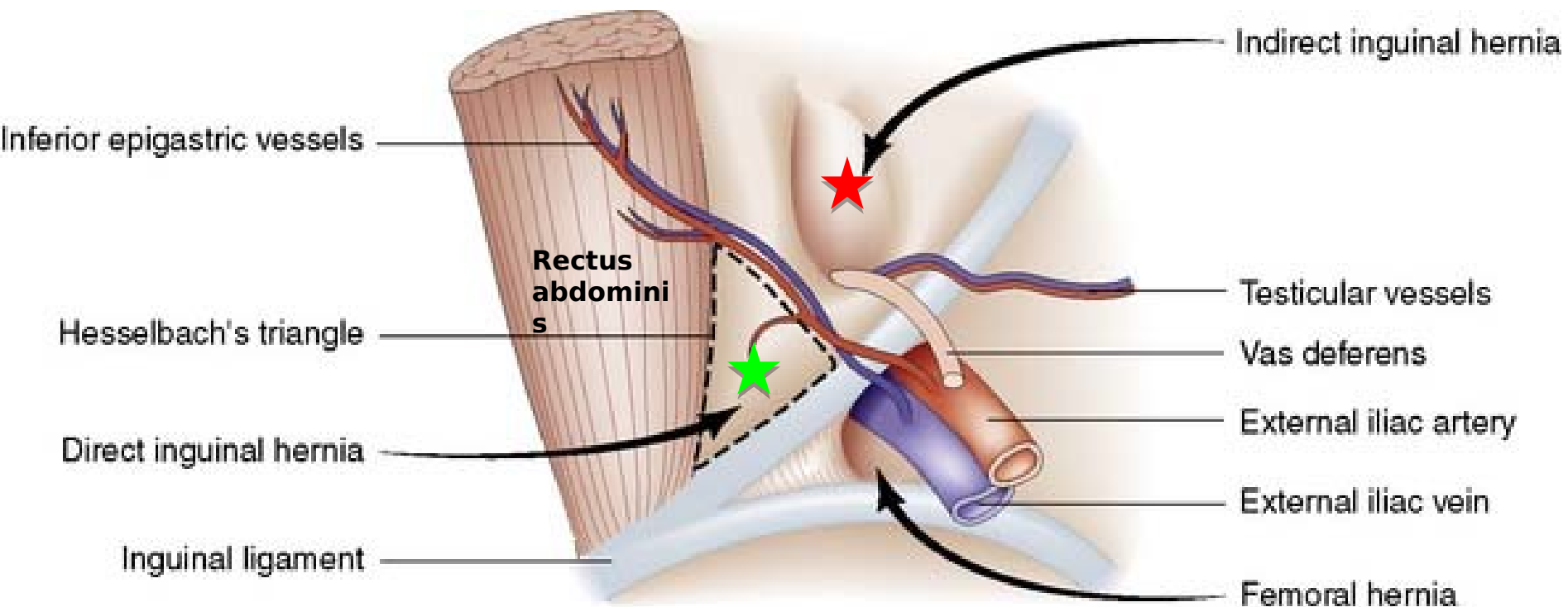
Direct inguinal hernia

- Hernia pushes directly forward through the posterior wall of the inguinal canal (i.e through the inguinal triangle)
- **Arises medial to the inferior epigastric artery.**
- **Usually doesn't descend to the scrotum.**



To differentiate between direct & indirect hernia by *deep inguinal ring test*





- 1) Oblique inguinal hernia** arises lateral to inferior epigastric
- 2) Direct inguinal hernia** arises medial to inferior epigastric

Quiz

Which of the following structures forms the floor of the inguinal canal?

- A. Fascia transversalis
- B. Conjoint tendon
- C. Reflected part of the inguinal ligament
- D. External oblique aponeurosis
- E. Inguinal ligament

Quiz

The deep inguinal ring is a hole in :

- A. External oblique aponeurosis
- B. Internal oblique aponeurosis
- C. Transversus abdominis aponeurosis
- D. Fascia transversalis
- E. Extraperitoneal fatty tissue



Thank You